YATSIMIRSKIY, K.B.; RAYZMAN, L.P.

Complex formation of zirconium with inorganic acid anions. Zhur.neorg.khim. 8 no.5:1107-1111 My '63. (MIRA 16:5)

1. Ivanovskiy khimiko-tekhnologicheskiy institut.
(Zirconium compounds) (Acids)

YATSIMIRSKIY, K.B., RAYZMAN, L.P.

Catalytic oxidation of potassium iodide with hydrogen peroxide in the presence of rhodium salts. Zhur. neorg. khim. 7 no.8 1819-1823 Ag '62. (MIRA 16:6)

(Potassium iodide) (Hydrogen peroxide)
(Rhodium salts)

YATSIMIRSKIY, K.B.; RAYZMAN, L.P.

Zirconium complex formation with anions of organic acids in solutions. Zhur.neorg.khim. 6 no.11:2496-2503 '61. (MIRA 14:10)

1. Ivanovskiy khimiko-tekhnologicheskiy institut.
(Zirconium compounds) (Acids, Organic)

L 13803-63 EWP(q)/EWT(m)/BDS AFFTC/ASD JD/JG

ACCESSION NR: AP3003758 S/0075/63/018/007/0829/0834

AUTHOR: Yatsimirskiy, K. B.; Raysman, L. P.

TITLE: Determination of zirconium and hafnium occurring together, on the basis of their catalytic effect

SOURCE: Zhurnal analiticheskoy khimii, v. 18, no. 7, 1963, 829-834

TOPIC TAGS: zirconium, hafnium, iodide oxidation, hydrogen peroxide, iodine, optical density, catalytic effect, analytical determination, zirconium-hafnium salt mixture, simultaneous determination, standard solution, calibration curve

ABSTRACT: Oxidation of an iodide ion by hydrogen peroxide in the presence of zirconium and hafnium salt catalysts in an acid medium has been studied 1) to establish the effect of pH on the oxidation rate, 2) to study the joint effect of both catalysts on this rate, and 3) to develop an analytical method for the determination of both elements simultaneously present in solution. The experiment was conducted either with pure HCl-acidified solutions of zirconium or hafnium salts, or with mixtures of the salts added to a mixture of potassium iodide and hydrogen peroxide solutions. The optical density of the iodine gradually evolving (in the presence of starch) indicated the reaction rate at any given time. The results were

Card 1/63

recorded automatically. The concentrations of the reactants were KI, 6×10^{-4} M; H_2O_2, 6×10^{-4} M; starch, 0.004%; Zr, 0.1×10^{-5}–1.0×10^{-5} M; and Hf, 0.1×10^{-5}–1.0×10^{-5} M. The pH was 0.4—2.8. All experiments were conducted at 25.0 ±0.1C. The results were obtained as straight-line plots of time versus optical density; plots of the slopes (tan α) (i.e., reaction rate) versus pH revealed maxima at pH 1—1.1 for zirconium salt solutions, and pH 2.1—2.2 for hafnium. Further analysis of the data, which took into account the concentrations of all possible particles, i.e., ions of partially or totally hydrolyzed zirconium or hafnium salt, hydroxyl complex ions such as $Zr(OH)^{3+}$, etc., indicated that the $Zr(OH)_3^+$ and presumably $Hf(OH)_3^+$ ions seem to be the catalytically active particles and that their maximum concentrations are at pH 1.1 and 2.1—2.2, respectively. The additive effect of the catalysts when present together was established by determining the linear analytical function proportional to their total concentrations, C_{Zr} or C_{Hf}:

$$k_2' \tan \alpha - k_2 \tan' \alpha = (k_2 k_1' - k_1 k_2') C_{Zr}$$

$$k_1 \tan' \alpha - k_1' \tan \alpha = (k_2' k_1 - k_1' k_2) C_{Hf}.$$

Mathematical analysis of the reaction kinetics established four constants for Zr and Hf at pH 1.1 and 2.2, respectively: k_1, 0.913 ±0.066 x 10^5; k_1', 0.106 ± 0.007 x 10^5; k_2, 0.943 ±0.43 x 10^5; k_2', 2.16 ±0.13 x 10^5. Fluctuations in the values

L 13803-63

ACCESSION NR: AP3003758

are caused by possible differences in solution concentrations and reaction conditions. The difference in catalytic effect was used in an analytical method for approximate determination of small concentrations of Zr and Hf simultaneously present in solution. The four constants are determined in each case, after which calibration curves of the analytical function depending on tan α at both pH values and including all four constants are plotted separately for several standard concentrations of Zr and Hf (see Figs. 1 and 2 of the Enclosure). After determining tan α at pH 1.1 and 2.2 for the unknown mixture, the sought concentrations are determined graphically. The mean error of the method is ±15%. The absence of systematic error confirms the additive nature of the catalytic effect. Orig. art. has: 4 figures, 2 tables, and 12 formulas.

ASSOCIATION: Ivanovskiy khimiko-tekhnologicheskiy institut (Ivanovo Institute of Chemical Technology)

SUBMITTED: 21Sep62 DATE ACQ: 08Aug63 ENCL: 02

SUB CODE: CH NO REF SOV: 004 OTHER: 000

Card 3/3

L 17008-63 EWP(q)/EWT(m)/BDS AFFTC/ESD-3 RM/JD/JG
S/078/63/008/005/008/021

AUTHOR: Yatsimirskiy, K. B., Rayzman, L. P.

TITLE: Complexing of zirconium with the ions of inorganic acids

PERIODICAL: Zhurnal neorganicheskoy khimii, v. VIII, No. 5, May 1963, 1107-1111

TEXT: The authors study the complex compounds of zirconium with the anions of sulfuric, molybdic and tungstate acid in quite dilute solutions. In the solutions studied, complexes with metal-alloy ratio of 1:1 were formed. The authors computed the equilibrium constants for the $[ZrOSO_4]$ and $[ZrMoO_4]^{2}$ complexes, and also found the approximate conditional value of the equilibrium constant for the interaction between zirconium chloroxide and sodium tungstenate. There are 2 tables. The 1 Enghish-language reference reads as follows: R. Connick, McVey, J. Amer. Chem. Soc., 71, 3182 (1949).

Complexing of zirconium with the ions.....

ASSOCIATION: Ivanovo Chemico-Techmological Institute.

Card 1/1

YATSIMIRSKIY, K.B.; RAYZMAN, L.P.

Determination of zirconium and hafnium present together based on their catalytic action. Zhur.anal.khim. 18 no.7:829-833 Jl '63. (MIRA 16:11)

Ivanovo Chemico-Technological Institute.

YATSIMIRSKIY, K.B.; RAYZMAN, L.P.

Catalytic oxidation of iodide with hydrogen peroxide in the presence of zirconium salts. Zhur. neorg. khim. 5 no.3:593-598 Mr '60. (MIRA 14:6)

1. Ivanovskiy khimiko-tekhnologicheskiy institut.
(Iodides)
(Hydrogen peroxide)
(Zirconyl chloride)

GRINFEL'D, D.G.; RAYZMAN, M.M.

First experiment in the work of the department for equipment adjustment. Sakh. prom. 37 no.8:11-14 Ag '63. (MIRA 16:8)

1. Kurskiy filial Gosudarstvennogo proyektnogo instituta sakharnoy promyshlennosti.
(Sugar industry—Equipment and supplies)

KOLOTOVA, N.N., doktor meditsinskikh nauk; RAYZMAN, R.D.; SHUL'GA, V.I.

Rheumatic hepatitis. Vrach.delo no.5:523-525 My '57. (MLRA 10:8)

1. Kafedra terapii (zav. - dots. G.I.Burchinskiy) stomatologicheskogo fakul'teta Kiyevskogo meditsinskogo instituta i terapevticheskoye otdeleniye Pervoy podol'skoy bol'nitsy Kiyeva
(LIVER--DISEASES) (RHEUMATIC FEVER)

RAYZMAN, S., arkhitektor

Duplex apartments in houses of few stories. Stroi.i arkhit. 8 no.6:15-17 Je '60. (MIRA 13:6)
(Ukraine--Apartment houses)

RAYZMAN, G.Ye., arkhitektor

Planning and using gallery-type apartment houses. Zhil.-kom. khoz. 8 no.10:9-11 '58. (MIRA 11:11)
(Apartment houses)

RAYTMAN, S. Y.

"Conference of Stomatologists and Dentists of the Novosibersk Oblast," Stomatologiya, No. 3, 1949. Chief Stomatologist, Novosibirsk Oblast, -c1949-.

RAYZMAN, S.S., prof. (Stalinsk)

Changes in the maxillotemporal joint in some farms of orthopedic treatment; experimental study. Stomatologiia 36 no.1:53-59 Ja-F '57. (MIRA 11:1)
(JOINTS--DISEASES) (ORTHODONTIA)

RAYZMAN, S.S.

Treatment of maxillofacial deformities according to experimental pathomorphologic investigations. Stomatologiia, Moskva no.3:41-47 1951. (CLML 21:1)

1. Of the Department of Maxillofacial Surgery and Stomatology (Head -- Prof. S. S. Rayzman), Novosibirsk Institute for the Advanced Training of Physicians (Director -- Prof. G. D. Zalesskiy).

RAYZMAN, S.S., professor.

Experimental roentgenographic examinations of the jaws.
Stomatologii no.1:49-53 Ja-F '54. (MLRA 7:1)

1. Iz kafedry chelyustno-litsevoy khirurgii i stomatologii (zaveduyushchiy - professor S.S.Rayzman) Novosibirskogo instituta usovershenstvovaniya vrachey (direktor - professor G.D.Zalesskiy).
(Jaws) (Diagnosis, Radioscopic)

[illegible] ([illegible], Praha 3); [illegible], A.; [illegible], [illegible]; [illegible], V.; JELINEK, V.; [illegible]KY, M.

Substances with antineoplastic properties. Part 12. Cesk. farm. 14 no.6:315-319 Ag '65.

1. Vyzkumny ustav pro farmacii a biochemii, Praha. Submitted December 19, 1964.

FRANCOVA, V.; RAZ,K.; FRANC,Z.; CERNY,A.; SEMONSKY,M.; JELINEK,V.

Antineoplastic drugs. VII. Comparison of the absorption, tissue distribution, and excretion of ^{35}S-buthiopurin and its ^{35}S-butyl ester in S-180 sarcoma-bearing mice. Neoplasma 11 no.2:165-170 '64

1. Pharmacy and Biochemistry Research Institute, Prague, Czechoslovakia.

CZECHOSLOVAKIA

SILIVA, D.; KAZDA, K.; FRANC, Zd.; NEMECEK, O.; Research Institute of Pharmacy and Biochemistry (Vyzkumny Ustav pro Farmacii a Biochemii), Prague.

"Absorption, Distribution, and Excretion of Activity After the Administration of C^{14}-Ketophenylbutazone to Rats."

Prague, Ceskoslovenska Fysiologie, Vol 15, No 5, Sep 66, pp 497 - 498

Abstract: 1,2-diphenyl-4-(gamma-ketobutyl)-pyrazolidin-3,5-dion was tagged with radioactive C on the 3rd carbon in the pyrazolidin ring. The rate of adsorbtion and excretion and the affinity of individual organs for the drug are described. The drug has a high affinity for the brain, and stimulates the hypophysis adrenal glands. It has a low affinity for blood and is transported by the blood. The levels in bones are low. 2 Western, 3 Czech references. 1 Figure. Submitted at 14 Days of Pharmacology at Smolenice, 16 Feb 66.

1/1

Poland / Virology. Bacterial Viruses (Bacteriophages) E-1

Abs Jour : Ref Zhur - Biol., No 18, 1958, No 81198

Authors : Bodalski, T.; Kantoch, M.; Razadkowska, H.
Inst : Polish AS
Title : Antiphage Action of the Alkaloids of Chelidonium Majus L.

Orig Pub : Dissert. pharmac. PAN, 1957, 9, No. 4, 273-286

Abstract : Three alkaloids were isolated in pure form from roots of celandine (Ch. majus L): sanguinarin (I), chelerythrine (II) and chelidonin (III). Hydrochloride compounds of I and II were capable of direct irreversible inactivation of coli phages 1_{017} and T2. For phage 1_{017}, in 24 hours at 37°, I inactivated 99% at a 1:1000 concentration and 51.5% at a 1:10,000 concentration; II inactivated 87.5% of the phage at a 1:1000 concentration and 21% at a 1:10,000 concentration. I and II had a lesser effect on phage T2. III hydrochloride exerted no antiphage activity even at a 1:500 dilution. The

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Card 2/2

KAZAKOV, R.M.

Economics of city gas supply in the republics of Central Asia.
Gaz. prom. 9 no.9:19-22 '64. (MIRA 17:10)

RAZAKOV, R.M.

Certain problems in the economics of gas distribution to the cities of Uzbekistan. Gaz. delo no.6:37-42 '64.
(MIRA 17:8)

1. Moskovskiy ordena Trudovogo Krasnogo Znameni institut neftekhimicheskoy i gazovoy promyshlennosti imeni akademika Gubkina.

S/113/60/000/011/001/007
D257/D304

AUTHORS: Razamat, E.S. and Slutskiy, M.I.

TITLE: The mechanization and automation of production control in automobile building

PERIODICAL: Avtomobil'naya promyshlennost', no. 11, 1960, 1-6

TEXT: The article describes a system of mechanizing and automating production control in the automobile industry. The system was developed by the production organization department of NIITAvtoprom in cooperation with the Moskovskiy zavod malotirazhnykh avtomobiley (Moscow Small Automobile Plant) and the Moskovskiy avtozavod imeni Likhacheva (Moscow Automobile Plant imeni Likhachev) from experience accumulated in production control and from an analysis of foreign work in this field. The operative registration system is arranged so that each production section has a minimum of product registration points. Materials, semi-products, finished parts and commodities moved from the stores to a shop or from one shop to another are counted only once by the supplier, while items delivered to

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the marketing section are counted once when they enter the ready goods stores. Counting is done automatically or semi-automatically with various types of pickups whose readings are relayed to remote counters grouped on control panels. The counter readings are used for the continuous checking of the fulfillment of hourly, shift and daily quotas, estimating production and calculating wages. They are also used for compiling weekly tabulograms showing the fulfillment of plans by sections, shops and the plant as a whole. The readings are computed in the accounting machine station. For regulating production movement the system of forced and automatic supply of material and parts to all primary operations is recommended. The shop manager checks on fulfillment of the production plan by the various sections, by analyzing the daily tabulograms and by a visual study of the section control boards via a television hook-up. The section management also has a control panel equipped with remote counters, automatic schedules, operational television communication and scanning indicators for a continuous check of work on the main production commodities. The plant's production manager checks and controls work in the shops and the overall plan fulfillment by

analyzing the daily operational tabulograms from the computing center and the readings of the remote counters in the dispatching control point. The authors describe the purposes and equipment of these dispatching control point. The authors describe the purposes and equipment of these dispatching control points and recommend that electronic computing centers or sections for the mechanization and automation of all computing work within the competence of the plant's chief engineer be set up in the plant's accounting machine station. The advantages of this system are listed and contrasted with some of the current efforts at the mechanization and automation of operational production control being made by the Moscow Automobile Plant imeni Likhachev and the Moscow Small Automobile Plant. There are 5 figures.

ASSOCIATION: NIITAvtoprom

Card 3/3

AUTHORS: Razamat, E.S. and Slutskiy, M.I. SOV-113-58-8-2/21

TITLE: The Mechanization of Transportation and Storage Procedures at Soviet Automobile Plants (Mekhanizatsiya transportnykh i skladskikh rabot na otechestvennykh avtomobil'nykh zavodakh)

PERIODICAL: Avtomobil'naya promyshlennost', 1958, Nr 8, pp 1-3 (USSR)

ABSTRACT: This article deals with the development of the mechanization and automation of the production processes, as well as the transportation and storage procedures at automobile plants. The following automobile plants are mentioned in this connection: The Moskovskiy avtozavod imeni Likhacheva (Moscow Automobile Plant); the Gor'kovskiy avtozavod (Gor'kiy Automobile Plant); the Ul'yanovskiy avtozavod (Ul'yanovsk Automobile Plant). In May 1958, a special technical conference was convened by the Ul'yanovsk Sovnarkhoz, at which the mechanization of the national industry was recommended, as well as the working out of standard units of push-type conveyers. The Gor'kiy Automobile Plant and the "Elektrostanok" Plant must organize the series production of electrical equipment

Card 1/2

The Mechanization of Transportation and Storage Procedures at Soviet Automobile Plants

for these conveyers. Some hoist and transporting machine works, such as the Poltava, Krasnodar and Khabarovsk Plants will specialize in theirproduction.

ASSOCIATION: The NIIT Avtoprom (Scientific Research Institute of the Transport of Automobile Industry)

1. Automobile industry--USSR 2. Industrial plants--Control
3. Industrial plants--Equipment

RAZAMAT, E.S.; SLUTSKIY, M.I.

Mechanization and automation of production process in the motor-vehicle industry. Avt.prom. no.11:1-6 N '60. (MIRA 13:11)

1. Nauchno-issledovatel'skiy institut tekhnologii avtomobil'noy promyshlennosti.
(Automobile industry--Technological innovations)
(Automation)

GAL'TSOV, A.D.; DENISYUK, I.N.; LEVANDOVSKIY, S.N.; LOSEV, A.G.; PEZIK, M.O.; PETROCHENKO, P.F.; SAVOS'KIN, N.M.; TRUBITSKIY, G.R.; KHISIN, R.I.; KHROMILIN, V.A.; ALEKSEYEV, S.S., retsenzent; GAL'PERIN, L.I., retsenzent; GRANOVSKIY, Ye.N., retsenzent; ZAKHAROV, N.N., retsenzent; KVASHNIN, S.A., retsenzent; KEREKESH, V.V., retsenzent; KOTENKO, I.N., retsenzent; LIVSHITS, I.M., retsenzent; LERNER, G.V., retsenzent; NEVSKIY, B.A., retsenzent; NOVIKOV, V.F., retsenzent; RAZAMAT, E.S., retsenzent; SERGEYEV, A.V., retsenzent; STEFANOV, V.P., retsenzent; TOLCHENOV, T.V., retsenzent; FEDOTOV, F.G., retsenzent; VOL'SKIY, V.S., red.; STRUZHESTRAKH, Ye.I., red.; USPENSKIY, Ya.K., red.; SEMENOVA, M.M., red.izd-va; MODEL', B.I., tekhn.red.

[Handbook for work-norm experts in machine manufacture] Spravochnik normirovshchika-mashinostroitelia v 4 tomakh. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry. Vol.1. [Fundamentals of technical normalization] Osnovy tekhnicheskogo normirovaniia. 1959. 676 p. (MIRA 12:12)

(Standardization)

RAZAMAT, E.S.; SLUTSKIY, M.I.

Mechanizing conveying and storage operations in Russian automobile plants. Avt. prom. no.8:1-3 Ag '58. (MIRA 11:10)

1.Nauchno-issledovatel'skiy institut transporta Autoprom.
(Automobile industry)

POKROVSKIY, K.V.; FARZANE, N.G.; DANILOV, A.S.; RAZAMAT, M.S.

Experimental study of changes in condensate gas recovery and in the industrial gas factor during the exploitation of condensate pools without sustaining pressure. Izv.vys.ucheb.zav.; neft' i gaz 1 no.11:71-76 '59. (MIRA 12:5)

1. Azerbaydzhanskiy industrial'nyy institut im. M.Azizbekova.
(Condensate oil wells)

RAZAMAT, M.S.

Graphic method for determining the reservoir pressure of gas-condensate wells in contact with an oil ring. Izv. vys. ucheb. zav.; neft' i gaz 8 no.4:47-51 '65. (MIRA 18:5)

1. Azerbaydzhanskiy institut nefti i khimii im. M.Azizbekova.

PETRUSHEVSKIY, Ye.I., KAZAMAT, M.S.

Effect of nonequilibrium on the separation of condensate from gas. Izv.vys.ucheb.zav.; neft' i gaz 6 no.11:61-66 '63. (MIRA 17:9)

1. Azerbaydzhanskiy institut nefti i khimii im.M.Azizbekova.

KOKHOVSKIY, K.V.; RAZAMAT, M.E.

Method for determining the reservoir pressure in wells that produce gas, condensate, and oil. Izv. vys. uch. zav.; neft' i gaz 5 no.9:45-50 '62. (MIRA 17:5)

1. Azerbaydzhanskiy institut nefti i khimii im. M. Azizbekova.

POKROVSKIY, K.V.; RAZAMAT, M.S.

Thermodynamic study of a mixed gas-condensate with oil system.
Izv. vys. ucheb. zav.; neft' i gaz 4 no.9:41-48 '61. (MIRA 14;12)

1. Azerbaydzhanskiy institut nefti i khimii imeni M. Asisbekova.
(Condensate oil wells)

VELIKOVSKIY, A.S.; POKROVSKIY, K.; STEPANOVA, G.S.; RAZAMAT, M.S.

Effect of pressure and temperature on the recovery of the condensate from gas of the Karadag oil field. Gaz. prom. no.10:13-17 O '58. (MIRA 11:11)
(Karadag--Condensate oil wells)

VELIKOVSKIY, A.S.; POKROVSKIY, K.V.; STEPANOVA, G.S.; RAZAMAT, M.S.

Study of thermodynamic conditions governing the separation of gas in a gas condensate field. Trudy VNIIGAZ no.17:108-114 '62. (MIRA 15:12)

(Gas, Natural--Separation)

TARANOV, Petr Yakovlevich. KHANUKAYEV, A.N., prof., retsenzent; BUBOK, V.K., retsenzent; BOROVIKOV, V.A., retsenzent; KARPUNOV, Ye.G., retsenzent; MISNIK, Yu.M., retsenzent; SMIRNOV, N.A., retsenzent; RAZANAT, V.V., retsenzent; SAVRASOV, L.M., retsenzent; YURMANOV, Yu.A., retsenzent; BABICHEV, N.S., retsenzent

[Blasting operations] Burovzryvnye raboty. Izd.2. Moskva, Nedra, 1964. 253 p. (MIRA 18:7)

[illegible], [illegible], RAKHMAT, V.V.

Use of horizontal holes on benches of varying height. Izv. AN Uz. SSR. Ser. tekh. nauk 8 no.5:69-74 '64. (MIRA 18:2)

1. Gornyy otdel AN UzSSR.

RAZAMZIN, fnu

"Enteritis of Calves Caused by Anaerobia," Veterinariya, No. 1, 1948. Sr. Veterinary Dr., Primorskiy Admin., 'Dal' Stroi, -c1948-.

USSR/Cultivated Plants - General Problems. M-1

Abs Jour : Ref Zhur - Biol., No 7, 1958, 29652

Author : Razanov, A.N.
Inst : -
Title : The Natural Conditions of the Altai Region and the Problem of Cultivation of Virgin and Lie Land Soils.

Orig Pub : Izv. AN SSSR, ser. biol., 1957, No 4, 401-415.

Abstract : Data is given on the orography, geographical structure, geomorphology and hydrogeographical conditions of the kray. The soil, soil climatic conditions and plant life are described. A scheme for the natural districting of agriculture is presented.

Card 1/1

GLAZUNOV, A.A.; GLAZUNOV, Aleksandr Aleksandrovich; RAZANOV, G.M. [authors]; LOPATIN, I.A., inzhener (Leningrad); VEKSEL'MAN, O.G., inzhener [reviewers].

Remarks on A.A.Glazunov's, A.A.Glazunov's and G.M.Rozanov's article "Economically practical relationship of the cross section of aluminum and steel in steel-aluminum conductors." Elektrichestvo no.6:61-66 Je '53. (MLRA 6:7)

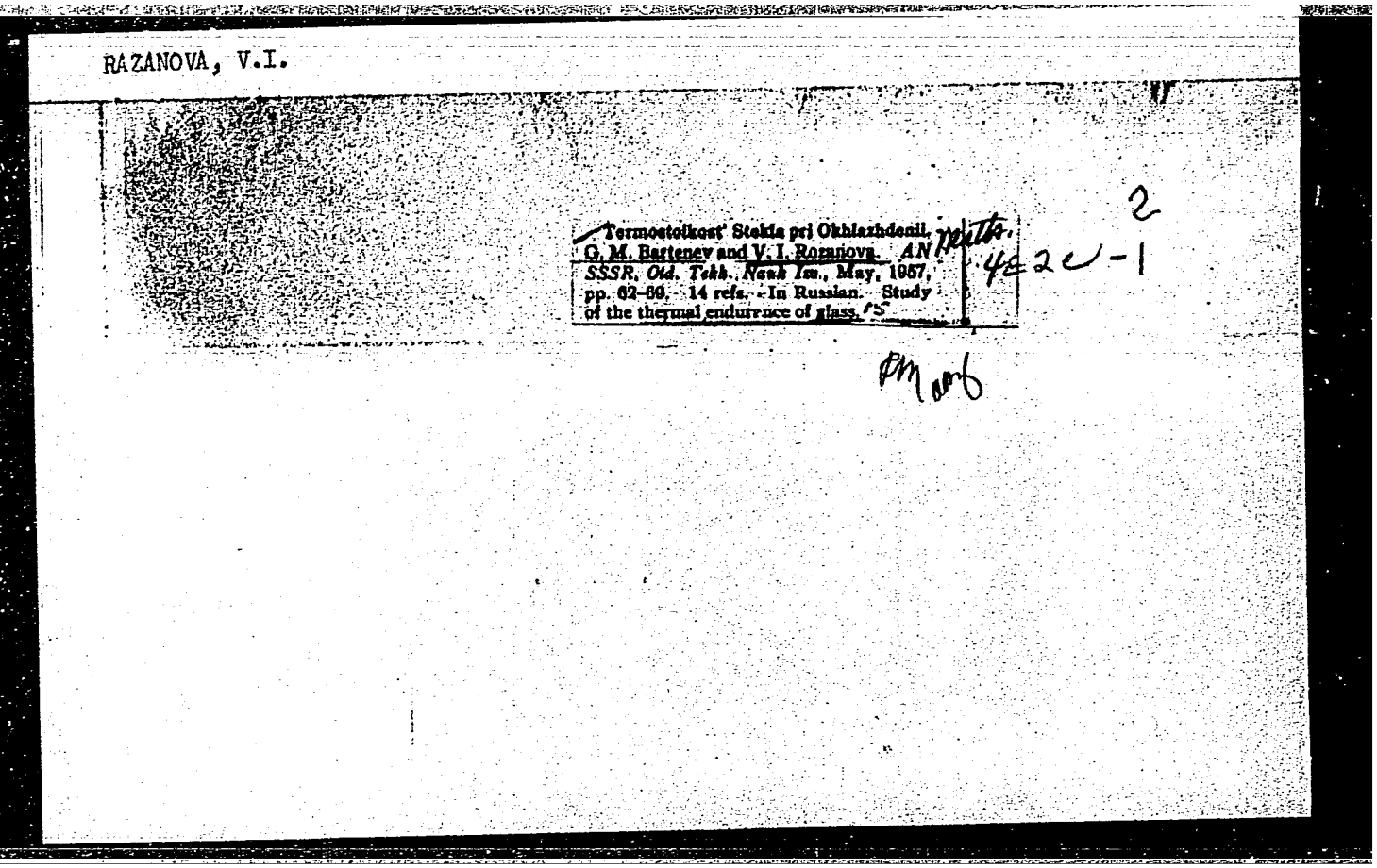
1. Khar'kovenergo (for Veksel'man). (Electric cables) (Glazunov, Aleksandr Aleksandrovich, 1891-) (Glazunov, A.A.) (Rozanov, G.M.)

RAZANOV, V. G.

Tractor DT-54. 3. perer. izd. Moskva, Gos. izd-vo sel'khoz. lit-ry, 1954.
327 p. (Uchebniki i uchebnye posobiia dlia podgotovki sel'skokhoziaistvennykh kadrov massovoi kvalifikatsii) (54-38737)

TL233.R69 1954

1. Tractors.



RAZANOVA, V.I.

Termostoikost' Stekla pri Okhlazhdenii. G. M. Bartenev and V. I. Romanova. *AN SSSR, Otd. Tekh. Nauk Im.*, May, 1957, pp. 62–69. 14 refs. In Russian. Study of the thermal endurance of glass.

L 22450-66 EWT(l)/EWT(m)/EWP(f)/T-2 WW/DJ

ACC NR: AP6002537 SOURCE CODE: UR/0286/65/000/023/0039/0039

AUTHORS: Zinov'yev, V. S.; Razarenov, R. G.; Pilipchuk, V. I.; Sukharev, A. P.

ORG: none

TITLE: Diaphragm compressor. Class 27, No. 176656

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 23, 1965, 39

TOPIC TAGS: diaphragm, compressor, gas compressor

ABSTRACT: This Author Certificate presents a diaphragm compressor. The compressor includes a case divided by a diaphragm into two chambers (one pneumatic and one hydraulic), containing a working piston with a crankshaft drive. To simplify construction and to increase reliability, the hydraulic chamber is equipped with a suction valve and a plunger-type liquid pressure compensator (see Fig. 1). The latter is placed in the piping connecting the hydraulic chamber with the lower piston chamber.

Card 1/2 UDC: 621.512.8

L 22450-66

ACC NR: AP6002537

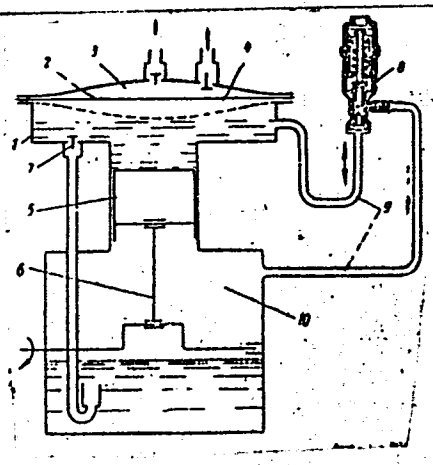


Fig. 1. 1 - case; 2 - diaphragm; 3 - gas chamber; 4 - hydraulic chamber; 5 - piston; 6 - crankshaft drive; 7 - suction valve; 8 - pressure compensator; 9 - piping; 10 - lower piston chamber.

Orig. art. has: 1 figure.

SUB CODE: 13/ SUBM DATE: 18Nov64/

Card 2/2

CHEREMNYKH, Aleksandr Ivanovich; SAMAROV, Grigoriy Abramovich; RAZBASH, Isaak Yakovlevich, dotsent; VINOGRADOV, S.K., retsenzent; ISLANKINA, T.F., red.; MEDVEDEV, L.Ya., tekhn.red.

[Designing of women's clothing] Konstruirovanie verkhnei zhenskoi odezhdy. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po legkoi promyshl., 1959. 142 p. (MIRA 13:9)
(Dressmaking--Pattern design)

TRUKHANOVA, Antonina Timofeyevna; RAZBASH, I.Ya., nauchn. red.; ISH, N.N., red.; NESMYSLOVA, L.M., tekhn.red.

[Special technology teaching in the training of tailors for outerwear garments; methodological textbook] Prepodavanie spetsial'noi tekhnologii pri podgotovke portnykh verkhnei odezhdy; metodicheskoe posobie. Moskva, Proftekhizdat, 1963. 131 p. (MIRA 17:2)

RAZBASH, I.Ya., dotsent

"Design of women's light clothing and lingerie" By L.T.Statiukha. Reviewed by I.IA.Razbash. Shvein.prom. no.3:33 My-Je '59. (MIRA 12:9)

(Lingerie) (Clothing and dress) (Statiukha, L.T.)

TSAREV, N.I.; RAZBASH, I.Ya., dotsent, nauchnyy redaktor; SINICHENKO, L.M., redaktor; MEDVEDEV, L.Ya., tekhnicheskiy redaktor

[Making women's coats ans suits] Konstruirovanie zhenskoi verkhnei odezhdy; dlia massovogo poshiva. 2-e izd. Moskva, Gos. nauchno-tekhn. izd-vo Ministerstva promyshlennykh tovarov shirokogo potrebleniia SSSR, 1954. 213 p. (MLRA 8:4)
(Tailoring (Women's))

RAZBASH, R. Ya.

May 50

USSR/Physics - Titanates
Dielectrics

"Electrical Strength (KV/CM) of Titanates of Metals in the Second Group of the Periodic Table," B. M. Vul, I. M. Gol'dman, R. Ya. Razbash, Phys Inst imeni Lebedev, Acad Sci USSR, 6 pp

"Zhur Eksper i Teoret Fiz" Vol XX, No 5

Establishes that electrical strengths 175 to 65 kv/cm, respectively, of titanates of Be, Mg, Ca, Zn, Sr, Cd, Ba are relatively small and depend only slightly on composition. Measurements on BaTiO, lowest in electrical strength, show that significant variations in dielectric permeability do not influence its electrical strength. Submitted 31 Dec 49.

PA 160T98

Razbash, R.Ya.

G-2

Category : USSR/Electricity - Dielectrics

Abs Jour : Ref Zhur - Fizika, No 2, 1957, No 4147

Author : Bogdanov, S.V., Vul, B.M., Razbash, R.Ya.
Title : Influence of Polarization Conditions on the Piezo Properties of Barium Titanate

Orig Pub : Zh. tekhn. fiziki, 1956, 26, No 5, 958-962

Abstract : The effect of the intensity of the polarizing electric field E and of the temperature T on the piezo-modulus d_{33} of ceramic $BaTiO_3$ was investigated. It is shown, that the polarization of thick specimens can be produced at lower values of E and at higher values of T. The closer the polarization temperature is to the Curie temperature, the less the value of E required for the polarization.

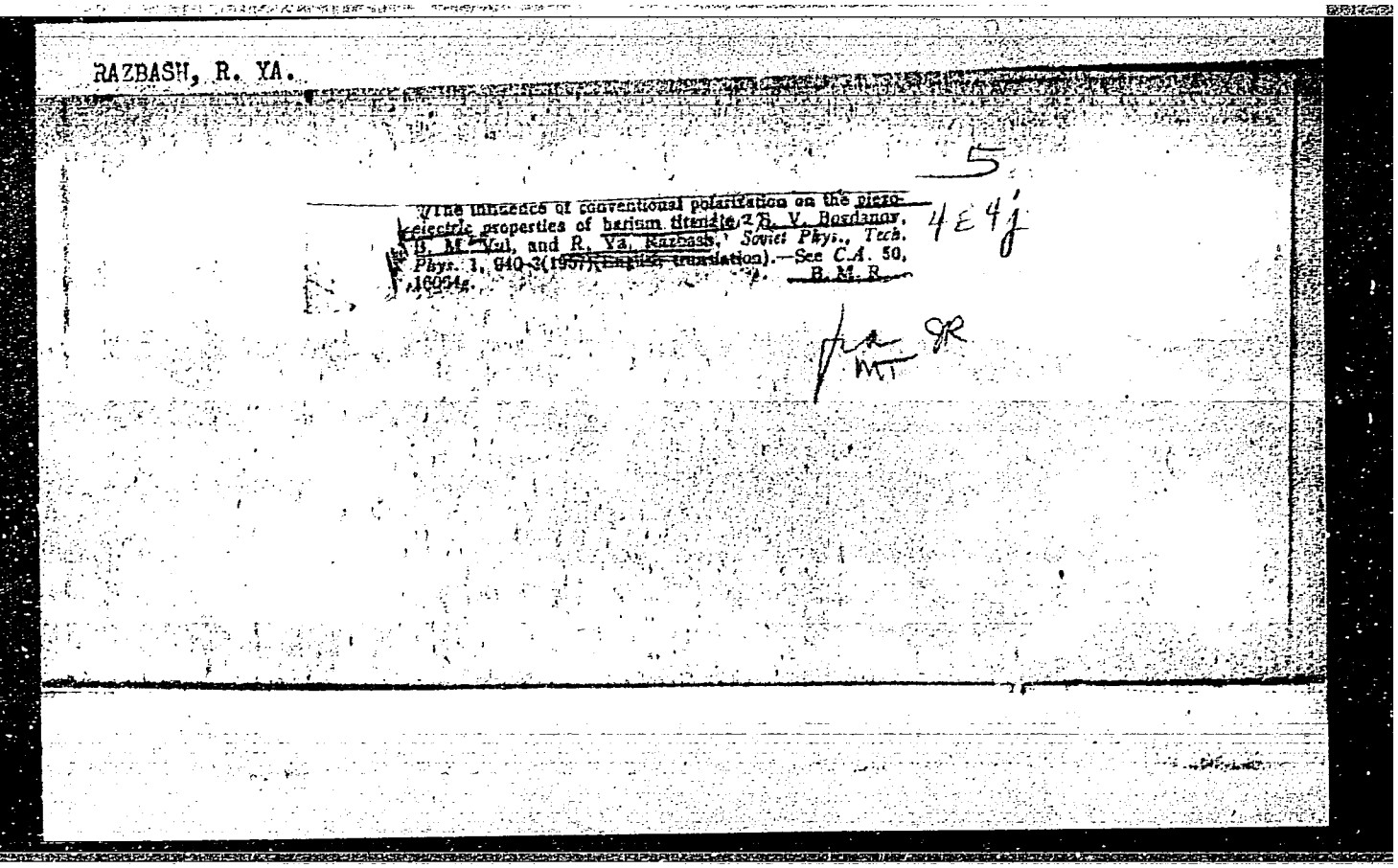
To orient the fundamental part of the domains in the interval of the rapid growth of the spontaneous polarization (6 -- 7° below the Curie point), E must not be less than 5 kv/cm for any values of T of the polarization.

Card : 1/1

BOGDANOV, S.V.; VUL, B.M.; RAZBASH, R.Ye.

Piezoelectric modulus of dislocation for polarized barium titanate. Kristallografiia 2 no.1:115-118 '57. (MLRA 10:7)

1. Fizicheskiy institut imeni P.N. Lebedeva.
(Barium titanates--Electric properties)



RAZBASH, R. YA.

5

The influence of conventional polarization on the piezoelectric properties of barium titanate / B. V. Bondarev, G. M. Vul, and R. Ya. Razbash, *Soviet Phys., Tech. Phys.* 1, 940-3(1957)(English translation).—See *C.A.* 50, 16094g. B. M. R.

4E4j

MT 9R

24(3)
AUTHORS: Chereпanov, A. M., Bogdanov, S. V., Rarbash, R. Ya. SOV/48-22-12-22/33

TITLE: Piezoceramics With High Curie Temperature (Segnetokeramika s vysokoy temperaturoy Kyuri)

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1958, Vol 22 Nr 12, pp 1497-1499 (USSR)

ABSTRACT: In the present paper a new method for the preparation of solid solutions with $PbTiO_3$-content is described. Experimental results have shown that it is possible to obtain samples of solid solution with a $PbTiO_3$-content not exceeding 15 mole %, by annealing in free atmosphere. In order to obtain samples having such a composition, no less than 20 mole % $PbTiO_3$ must be introduced into the initial composition. The method employed by the authors is to introduce the samples into casings of fireproof clay both in the temporary and in the final annealing process and to place these casings upon an alumina layer (Al_2O_3) which should be at least 5 mm thick. The samples are thereupon

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buried in alumina. The layer thickness above the samples must be of about 8-10 mm, on a sample surface of up to ~10 cm^2. On a larger surface this layer must be correspondingly thicker. The annealing heat is experimentally determined for each composition. It depends on a number of factors: relations of initial components to one another, purity, fineness of grinding, etc. In the case of pure initial components a temperature of 1350° ($PbTiO_3$) up to 1450°($BaTiO_3$) has been determined for the final annealing of the $BaTiO_3$-$PbTiO_3$-samples. A schematic illustration is given in figures 1a and b of the placing of the lead containing samples for the temporary and the final annealing process. The method described has already been successfully employed for the past 5 years for the preparation of the various lead containing compositions. The authors thank B. M. Vul for having given valuable advice. There are 5

Piezoceramics With High Curie Temperature SOV/48-22-12-22/33

figures, 1 table, and 8 references, 4 of which are Soviet.

ASSOCIATION: Fizicheskiy institut imeni P. N. Lebedeva Akademii nauk SSSR (Institute of Physics imeni P. N. Lebedev, Academy of Sciences, USSR)

Card 3/3

24(3) SOV/48-22-12-23/33

AUTHORS: Bogdanov, S. V., Kovalenko, G. M., Razbash, R. Ya., Cherepanov, A. I.

TITLE: On dielectric Properties of Solid Solutions of the Triple System $BaTiO_3$ - $PbTiO_3$ - $BaSnO_3$ (Dielektricheskiye svoystva tverdykh rastvorov troynoy sistemy $BaTiO_3$-$PbTiO_3$-$BaSnO_3$)

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1958, Vol 22, Nr 12, pp 1500 - 1503 (USSR)

ABSTRACT: In the present paper some of the dielectric properties of samples were investigated, the $BaSnO_3$ content of which was higher by 2%, 5.5%, 10% and 15% than the sum assumed as 100% ($BaTiO_3$+$PbTiO_3$). The samples were produced from the initial components $BaCO_3$, $PbCO_3$, TiO_2 and SnO_2. The investigations showed that the effect of dielectric properties is additive in the first approximation at a lower content of $PbTiO_3$ and $BaSnO_3$ in solid solutions. This additivity, is, however, disturbed in the case of a considerable content of $PbTiO_3$

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(20 ÷ 25%). This deviation can be due to two causes: first, a certain volatilization of lead is possible with a higher content of $PbCO_3$ in the initial solution; secondly, it is possible that an other lead compound except $PbTiO_3$ forms during the synthesis process, corresponding to the composition "$PbSnO_3$" described in references 13-15. Its influence upon dielectric properties of solid solutions is to a certain degree equivalent to the effect of $BaSnO_3$ (Ref 6). In the initial layer the quantity of the forming $PbSnO_3$ can be assumed to be proportional to $PbCO_3$ and SnO_2. The increase of the proportion of $BaSnO_3$ in solid solutions causes a decrease of the spontaneous polarization of the domains themselves on the one hand; on the other hand, when the voluminal electrostriction of the domains is diminished their orientation is facilitated by the electric field. The second effect is probably decisive with corresponding compositions. In the compositions

95 $BaTiO_3$ + 5$PbTiO_3$ + 2.5$BaSnO_3$

On Dielectric Properties of Solid Solutions of the Triple System $BaTiO_3$-$PbTiO_3$-$BaSnO_3$ SOV/48-22-12-23/33

$95BaTiO_3 + 5PbTiO_3 + 5BaSnO_3$

$90BaTiO_3 + 10PbTiO_3 + 5BaSnO_3$

a certain increase of the spontaneous and the residual polarization (as compared with pure $BaTiO_3$) can be observed when the coercive force remains nearly unchanged. These compositions also show a well formed hysteresis loop of a satisfactory rectangular form at a relatively low tension of the external field. There are 5 figures, 1 table, and 15 references, 11 of which are Soviet.

ASSOCIATION: Fizicheskiy institut imeni P. N. Lebedeva Akademii nauk SSSR (Physics Institute imeni P. N. Lebedev, Academy of Sciences USSR)

Card 3/3

Razbash, R. Ya.

81960
S/181/60/002/04/20/034
B002/B063

24.7300
AUTHORS: Bogdanov, S. V., Razbash, R. Ya.

TITLE: The Character of High-temperature Phase Transition in Some Solid Solutions of $BaTiO_3$ - $BaSnO_3$

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 4, pp 670-672

TEXT: Barium titanate with a low content of barium stannate is ferroelectric. Its Curie point is found near 100°C and below this temperature, depending on its content of barium stannate. It was the purpose of the present paper to determine the type of phase transition occurring in this process (first or second type). Four specimens of barium titanate with a barium-stannate content of 5, 7.5, 10, and 15% were prepared by a group of technologists under the direction of A. M. Cherepanov. Curie point and dielectric constant ε were measured, constant electric fields of a high strength being applied at the same time. (Table). Fig. 1 shows the temperature dependence of ε of a specimen at different field strengths. Fig. 2 indicates that the Curie point is shifted up to 20°C by the application

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The Character of High-temperature Phase Transition in Some Solid Solutions of $BaTiO_3$ - $BaSnO_3$

81960
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B002/B063

of a field strength of 15 kv/cm. This shift is proportional to the field strength. Thus, a phase transition of the first type took place. This assumption is supported by the occurrence of a temperature hysteresis of ε . Mention is made of publications by Roy, Kholodenko, and Sinyakov. There are 2 figures, 1 table, and 7 references: 6 Soviet and 1 Swiss.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva AN SSSR, Moskva (Institute of Physics imeni P. N. Lebedev of the AS USSR, Moscow)

SUBMITTED: May 19, 1959

Card 2/2

20023

S/070/61/006/001/001/011
E032/E314

9.2181 (2303, 1144, 1137)

AUTHORS: Bogdanov, S.V., Vul, B.M. and Razbash, R.Ya.

TITLE: Piezoelectric Properties of Polycrystalline Barium Titanate at High Pressures

PERIODICAL: Kristallografiya, 1961, Vol. 6, No. 1, pp. 72 - 77

TEXT: When the external stress applied to a ceramic $BaTiO_3$ specimen is not too high and does not give rise to residual deformations then after the load has been removed, practically all the domains return to their original state. This kind of process is defined as reversible reorientation. If, on the other hand, the external stress is sufficiently high to give rise to residual deformations then after the load has been removed not all the domains will return to the original state and the domain structure will go through a process of readjustment for a period of time after removal of the load. This will continue until the system reaches a state corresponding to a minimum free energy. This process is

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Piezoelectric Properties of .....

defined as irreversible reorientation. Both the reversible and irreversible reorientation lead to a reduction in the residual polarisation since the reoriented domains no longer contribute to the residual polarisation of the specimen. This reorientation is equivalent to a certain "additional" compression of the specimen. The present authors have investigated the piezocharge Q_3 as a function of applied stress (σ_{33}). In these experiments a measurement was made of the charge appearing on faces perpendicular to the Z-axis when a mechanical stress is applied at rightangles to these faces. The charge was measured with the aid of a ballistic galvanometer and the stress was applied by means of a special press. Ceramic specimens from various batches of $BaTiO_3$ were investigated. The specimens were cylindrical in form (height 5 mm, diameter 10 mm). It was found that the

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E032/E314

Piezoelectric Properties of ....

magnitude of the piezocharge Q_3 depended not only on σ_{33} but also on the past history of the specimen, e.g. the magnitude and duration of previous loadings and the interval of time between them. The properties of polycrystalline specimens were also found to be strongly dependent on their method of preparation. Fig. 1 shows experimental curves for Q_3 as a function of σ_{33} (Q is plotted along the vertical axis in coulomb/cm^2 and σ_{33} is plotted along the horizontal axis in kg/cm^2. In Fig. 1 the curve designations are as follows: a - first measurement, specimen loaded; б - first measurement, load removed; в - second measurement; г - third measurement, after artificial ageing. Fig. 2 shows the initial portion of the function $Q_3 = f(\sigma_{33})$. The curve marked a refers to the first measurement and the curve marked б refers to the measurements taken after artificial ageing. These

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Piezoelectric Properties of .....

results can easily be explained in terms of the above reversible and irreversible reorientations of the polar axes of domains (Vul and Bogdanov - Ref. 2). The authors have also investigated Q_3 as a function of σ_{11}. Here, the specimens were in the form of cubes (length of edge 6 - 8 mm) and the charge appearing on faces perpendicular to the Z-axis when a mechanical stress was applied. The X-axis was determined with the aid of a ballistic galvanometer. The results obtained are shown in Figs. 3 and 4 (Q_3 in coulomb/cm^2; σ_{11} in kg/cm^2). In Fig. 3, the curve marking is as follows: a - first measurement, load on; б - first measurement, load off; в - second measurement. Fig. 4 shows $Q_3 = f(\sigma_{11})$ for different durations of preliminary loading (a - first measurement; б - second measurement after σ_{11} kept at 2600 kg/cm^2 for 10 min;

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E032/E314

Piezoelectric Properties of .....

6 - the third measurement after σ_{11} at 2 600 kg/cm^2 for 16 hours). The piezoelectric moduli d_{31}, d_{32} and d_{33} were determined and the results obtained are given in the following table:

Piezo-modulus	Before ageing, $\times 10^{-6}$	After ageing, $\times 10^{-6}$	Relative change
d_{33}	4.85	3.37	0.695
d_{32}	1.93	1.49	0.773
d_{31}	1.91	0.89	0.446

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E032/E314

Piezoelectric Properties of .....

In the above table, the ageing was carried out at a load of 2 370 kg/cm^2 for long intervals of time and the moduli were then measured at low loads. These results are also explainable in terms of the reversible and irreversible reorientation. Finally, the $Q_3 = f(\sigma_{11})$ curves were obtained at different temperatures. The result is shown in Fig. 5. Curve a in this figure corresponds to the loading of the specimen for the first time at room temperature, Curve 5 to the loading for the second time at 60 °C and C to the loading for the third time at 76 °C. After cooling the specimen for 20 hours, the measurements were repeated at 18 °C (Curve 2). Finally, the effects of external stresses introduced into the specimen in the process of its preparation are briefly discussed. It is suggested that

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Piezoelectric Properties of .....

the experimentally observed difference between d_{31} and d_{32} is probably due to the above internal stresses.

There are 5 figures. 1 table and 8 Soviet references.

ASSOCIATION: Fizicheskiy institut im. P.N. Lebedeva AN SSSR (Physics Institute im. P.N. Lebedev of the AS USSR)

SUBMITTED: April 22, 1960

Card 7/8

BOGDANOV, S.V.; VUL, B.M.; RAZBASH, R.Ya.

Characteristic piezoelectric properties of ceramic piezoelements from $BaTiO_3$ cut out at an angle of 45° to the direction of polarization. Kristallografiia 6 no.2:271-273 Mr-Ap '61. (MIRA 14:9)

1. Fizicheskiy institut im. P.N.Lebedeva AN SSSR.
(Piezoelectricity) (Barium titanate)

KNYSH, S.F.; KOROTUN, L.S.; RAZBEGAYEVA, A.P.

Obtaining a salable product from the acid sludge of the benzene rectification plant. Koks i khim. no.5:49-50 '63. (MIRA 16:5)
(Coke industry--By-products) (Benzene)

AUTHOR: Razbegayeva, A.P. 68-58-3-15/22

TITLE: A Mechanisation of the ORSA Apparatus for Gas Analysis (Mekhanizatsiya raboty s gazoanalizatorom ORSA)

PERIODICAL: Koks i Khimiya, 1958, Nr 3, pp 53 - 54 (USSR).

ABSTRACT: A mechanisation of the transfer of gas from burette into absorption vessels is described. There are 1 table and 1 figure.

ASSOCIATION: Zaporozhskiy koksokhimicheskiy zavod (Zaporozh'ye Coke Oven Works)

Card 1/1

RAZBEGAYEVA, A.P.

Mechanized operation of the Orsat apparatus. Koks i khim. no.3:53-54 '58. (MIRA 11:3)

1. Zaporoshskiy koksokhimicheskiy zavod.
(Gases--Analysis)

GRIM, Ralph E.; ZVYAGIN, B.B. [translator]; MIKHEYEVA, I.V. [translator]; MIKHEYEV, V.I. [translator]; RAZUMOVA, G.I. [translator]; FRANK-KAMENETSKAYA, T.A. [translator]; FRANK-KAMENETSKIY, V.A., redaktor; YAKOVENKO, M.Ye., redaktor; DUMBRE, I.Ya., tekhnicheskiy redaktor

[Clay mineralogy. Translated from the English] Mineralogiia glin. Perevod angliiskogo B.B.Zviagina i dr. Pod red. i s predisl. V.A. Frank-Kamenetskogo. Moskva, Izd-vo inostrannoi lit-ry, 1956. 454 p. (MLRA 9:10)

(Clay)

RAZBEYKO, F., brigadir

Kind words. Mast.ugl. 9 no.9:15 S'60. (MIRA 13:10)

1. Brigada kommunisticheskogo truda shakhty "Komsomolets", tresta Gorlovskugol'.
(Donets Basin--Coal miners)

1. RAZBEZHKINA, A. D.

2. USSR (600)

4. Meadows

7. 100 tsentners of hay per hectare. Dost. sel'khoz. No. 5, 1952.

9. Monthly List of Russian Accessions, Library of Congress, January 1953. Unclassified.

AUTHOR: GROSS,E.F., RAZBIRIN,B.S., JAKOBSON,M.A. PA - 2187

TITLE: The Line Spectrum at the Edge of the Main Absorption and on the Structure of the Crystals of Sulphur-Cadmium. (Russian)

PERIODICAL: Zhurnal Tekhn.Fiz. 1957, Vol 27, Nr 1, pp 207-209 (U.S.S.R.)

Received: 2 / 1957 Reviewed: 3 / 1957

ABSTRACT: At first some relevant previous works are cited. On the occasion of a further development of these investigations of the absorption of light in CdS crystals, at temperature of liquid helium, the authors discovered the following interesting phenomena: 1) The narrow bands in the range of strong absorption, which are located on the shortwave side of the line spectrum of the absorption of the CdS crystal, show a fine structure. In the case of some bands this structure is more distinct than in the case of others. 2) Adsorption bands of the CdS crystals also have different states of polarization. Some lines are very highly polarized so that they occur in the spectrum only in one component. Other lines are either not polarized at all or only very slightly. 3) The weak absorption lines of the CdS crystals are on the long wave side of the edge of the main absorption; they are weaker and extremely sensitive to the conditions on which CdS crystals are produced and bred. The crystals, which were bred under different conditions, also have different spectra, especially with respect to the weak lines. Lines and

The Line Spectrum at the Edge of the Main Absorption and on the Structure of the Crystals of Sulphur-Cadmium (Russian)

weak bands with high absorption coefficients which were on the short wave side of the spectra of lines proved to have good stability. They obviously belong to the exiton levels. 4) The authors found an extraordinary variability of the line spectrum of absorption in the case of most of the crystals investigated. This applies not only to crystals produced by means of various methods but also for different points of one and the same crystal. Different crystal ranges also have different spectra. These and other phenomena indicate a very strong macroscopic inhomogeneity in the structure of various parts of a crystal and these ranges are sometimes distinctly separated from each other. Some phenomena resemble the STARK effect and indicate a strong inhomogeneity of the electric fields on the different parts of the crystals. The variety in the spectra of the CdS crystals, their inhomogeneity and variability may be due to several reasons of which, above all, the following are the most important: 1) The existence of a surplus of Cd- or S atoms in the CdS crystals. 2) The existence of "foreign" atoms in the CdS lattice. 3) Defects of all sorts in the crystal lattice. 4) Mechanical deformations of the lattice. 5) Surface

PA - 2187

The Line Spectrum at the Edge of the Main Absorption and on the Structure of the Crystals of Sulphur-Cadmium (Russian).

phenomena and surface levels. The phenomena observed by the authors offer wide possibilities for spectroscopical examinations of the CdS crystals.

ASSOCIATION Leningrad Physical-Technical Institute of the Academy of Science of the U.S.S.R.

PRESENTED BY:

SUBMITTED:

AVAILABLE: Library of Congress

Card 3/3

RAZBIRIN, B.S.

PA - 3573

AUTHOR: GROSS, YE.F., RAZBIRIN, B.S., YAKOBSON, M.A.

TITLE: Line Spectra of Fundamental Absorption Edge of the CdS Crystals. (Lineychatyy spektr kraya osnovnogo pogloshcheniya kristallov sernistogo kadmiya, Russian)

PERIODICAL: Zhurnal Tekhn. Fiz. 1957, Vol 27, Nr 5, pp 1149-1151 (U.S.S.R.)

ABSTRACT: The present paper gives a detailed description of the observations made at T = 4.2° K. At this temperature the lines mentioned were particularly distinct. The monocrystals of CdS investigated were obtained in different manners:

1.) According to FRERICH'S method (Phys.Rev. 72, 594, 1957).
2.) By sublimation of pure CdS powder in a H_2S- and H_2 - atmosphere.

In the case of all monocrystals investigated the optical axis C was in a plane of the crystal and was directioned according to the groove on the surface. It was found that a group of thin and weak lines on the edge of the real absorption domain, $\lambda\lambda$ 4889-4860 Å, undergoes considerable changes with respect to intensity and breadth and number of lines on the occasion of transition from one crystal to another. The number of absorption lines differs according to the different crystals. In most samples their spectra were observed also in polarized light. Some of the thin lines at

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57-6-36/36

AUTHOR: GROSO, Ye.F., RAZBIRIN, B.S.

TITLE: Hydrogen-like Line Series in the Spectrum of the Cadmium-Sulphide Crystal on the Border of Basic Absorption. (Vodorodopodobnaya seriya liniy v spektre kristalla sul'fida kadmiya u kraya osnovnogo pogloshcheniya, Russian)

PERIODICAL: Zhurnal Tekhn. Fiz., 1957, Vol 27, Nr 6, pp 1398 - 1399 (U.S.S.R.)

ABSTRACT: A regularity in the distribution of the lines of the spectrum was found to exist where the thicker crystals have a group of broad stripes $\lambda\lambda$ 4860 - 4790 Å. In very thin crystals with a thickness of about 1 μ, it was possible, because the stripes contracted and became narrow lines, to see a group of 4 thick absorption lines in the polarized light with an electric vector (which is located in a plane that is vertical to the optical crystal axis). It was found that the frequency of these lines satisfies the hydrogen-like dependence. The authors are of the opinion that this hydrogen-like series of thick lines in the absorption spectrum of the CdS shows that this series belongs to the exitons in the CdS crystal lattice. It is shown that the crystal in the plane which is vertical to the optical axis is "isotropic". It is assumed that in the case of excitation by a polarized light with an electric vector (which is located in a plane that is vertical to the optical crystal axis) the ex-

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57-6-36/36

Hydrogen-Like Line Series in the Spectrum of the Cadmium-Sulphide Crystal on the Border of Basic Absorption.

citation spectrum of the exitons can be hydrogen-like, which fact was also confirmed by experiment. (With 1 table and 3 Slavic references)

ASSOCIATION: ~~Not given~~ Phys Tech Inst AS USSR
PRESENTED BY:
SUBMITTED: 20.5.1957
AVAILABLE Library of Congress

Card 2/2

57-9-35/40

AUTHOR: Gross, Ye.F., Razbirin, B.S.

TITLE: The Spectrum of Edge Absorption in CdS Crystals and Its Relation with the Surface and Deformation of the Crystals (Spektr krayevogo pogloshcheniya kristallov sul'fida kadmiya i yego svyaz's poverkhnost'yu i deformatsiyami kristallov)

PERIODICAL: Zhurnal Tekhn. Fiz., 1957, Vol. 27, Nr 9, pp. 2173 - 2176 (USSR)

ABSTRACT: CdS crystal of various thicknesses were investigated. It was possible to investigate the absorption spectrum of a crystal of one tenth micron thickness. It was found in this case that the self-absorption of light was so weak that it was possible to penetrate far into the violet part of the CdS absorption spectrum and to observe two new relatively broad washed out absorption stripes at the temperature of liquid helium (T=4,2° K). One of them, has a breadth of 20 Å in the neighborhood of about λ = 4710 Å, the other, with a breadth of 30 Å in the neighborhood of λ = 4660 Å. Both are on the shortwave of the stripes previously detected by the authors (Zhurnal Tekhn. Fiz., 1957, p. 207 and DAN SSSR, 102, 485, 1955). Besides, the absorption spectrum of thick crystals obtained by the Frerikhs method was investigated. On the basis of experiments carried out it is

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57-9-35/40

The Spectrum of Edge Absorption in CdS Crystals and Its Relation with the Surface and Deformation of the Crystals

assumed that the narrow absorption lines in CdS crystals are not connected with the volume of the crystals but with its surface and are probably created during transition of the electrons under the influence of light into any levels, which are apparently located on the surface of the crystals. Both groups of experiments show that the narrow absorption lines are connected with the levels located on the surface of the crystals and are perhaps produced as a result of foreign substances existing on the surface of CdS crystals. It is shown that by the frequency of four stripes of nearly equal width which with one component of the electric vector $E \perp c$ (c - the optical crystal axis) satisfy the hydrogenlike relation. Observations carried out with polarized light make it possible to distinguish between two groups of CdS crystals which are distinguished from each other by the polarization of groups of narrow lines within the range of $\lambda\lambda$ 4889 - 4855 Å. There are 4 figures, 1 table, and 5 Slavic references.

Card 2/3

KAZBIRIN B S

AUTHORS: Gross, Ye. F., Razbirin, B. S. 57-2-4/32

TITLE: The Influence of Deformations on the Spectrum of CdS Crystals (Vliyaniye deformatsiy na spektr kristallov CdS).

PERIODICAL: Zhurnal Tekhnicheskoy Fiziki, 1958, Vol. 28, Nr 2, pp. 237-239 (USSR).

ABSTRACT: Tests were made here to find out whether the deformations caused by the pasting on of crystals are responsible for the distortion of lines in the absorption-spectrum of CdS-crystals. The lengthened CdS crystals was with one end pasted to a small glass-plate. The other half remained free and did not rest against the surface of the glass. In this manner it was possible to compare the absorption-spectra of the part of crystal pasted on and of the free part at the same time in one spectrogram. The tests showed that at T = 4,2°K as well the narrow lines λλ4889-4860 Å, as the bands λλ4860-4800 Å, in the spectrum of the part of crystal pasted to the glass are narrowed to almost half of their former width and are displaced by 8-9 Å toward the short-wave side (in comparison to their position in the free part of the crystal). In this connection the shape of the spectrum of the thin lines changes in a complicated way, the distance between them becomes smaller, the intensity is redistributed, the blurring of the lines is diminished and some of them are depolarized. The absorption in

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the lines $\lambda\lambda$4857 Å and 4869 Å is intensified. The part of the crystal between the two halves (the half pasted on and the free half) yields a distorted image of spectrum with a continuous transition from the spectrum of the one half (that pasted on) to the other one (the free one). Analogous distortions were observed after putting drops of glue upon the crystal. It is shown that the quantity and the direction for the displacement in the spectrum depend on the quantity and ths sign of the force deforming the crystal. This becomes evident from a comparison concerning the behaviour of the absorption-spectra of CdS crystals which are glued on glass- and quartz-bases. The spectrum of a crystal-part glued on quartz is displaced to the long-wave-side (by 1 Å) (in comparison to the crystal-part not glued on) and simultaneously with the displacement the absorption-lines become wider. This displacement to the long-wave side is connected with the expansion of the crystal by its base (on cooling quartz contracts less than CdS). It is pointed out that the pasting on of the CdS-crystals onto glass and quartz at T = 4,2°K is according to its effect equivalent to an additional cooling and heating of them. The phenomena described here show a high sensitivity of the spectrum of CdS-crystals to deformation.
There are 3 figures, and 4 Slavic references.

Author: [illegible] Deformations on the Spectrum of CdS Crystals. 57-2-4/32

ASSOCIATION: Technical Physics Institute AS USSR. Leningrad (Fiziko-tekhnicheskiy Institut AN SSSR. Leningrad).

SUBMITTED: July 29, 1957.

AVAILABLE: Library of Congress.

1. Crystals-Deformation 2. Crystals-Test methods
3. Crystals-Test results

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S/058/62/000/005/044/119
A001/A101

26.2420

AUTHORS: Gross, Ye. F., Razbirin, B. S.

TITLE: Investigation of the structure of main absorption edge in CdS crystals (Theses)

PERIODICAL: Referativnyy zhurnal, Fizika, no. 5, 1962, 32, abstract 5V223 (V sb. "Fotoelektr. i optich. yavleniya v poluprovodnikakh", Kiyev, AN USSR, 1959, 61-62)

TEXT: A strong variability of a group of weak thin lines at the long wavelength edge of fundamental absorption in the region from 4,860 to 4,889 A was discovered in the absorption spectrum of CdS crystals at 4.2°K. This variability, independence of absorption value of the crystal thickness and dependence of the lines on the state of crystal surface do not warrant their ascribing to the CdS principal lattice; they indicate a connection of these lines with the crystal surface. Contrary to these lines, strong bands of shorter wavelength than the narrow ones, are permanent. Their volumetric origin, a high absorption coefficient and regular distribution

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A001/A101

Investigation of the structure .....

testify on their exciton nature.

[Abstracter's note: Complete translation]

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24(7), 24(6)

AUTHORS: Gross, Ye.F., Novikov, B.V., Razbirin, B.S. and Suslina, L.G.

SOV/51-6-4-29/29

TITLE: Absorption Spectra of Crystals of Certain Gallium Chalcogenides (Spektry pogloshcheniya kristallov nekotorykh khalkogenidov galliya)

PERIODICAL: Optika i Spektroskopiya, 1959, Vol 6, Nr 4, pp 569-572 (USSR)

ABSTRACT: Linear structure in the long-wavelength edge of fundamental absorption was observed in the spectra of some semiconductors (Refs 1-10). These lines were ascribed by some authors to exiton states and by others to excess of one of the components of the semiconductor or to a foreign impurity. The present paper reports an investigation of the absorption spectra of gallium sulphide and selenide crystals (GaS and GaSe) with hexagonal laminar structure and crystals of β-Ga_2S_3 and Ga_2Se_3. GaS crystals were obtained by melting together at 1000-1050°C stoichiometric amounts of gallium and sulphur in evacuated quartz ampules. Crystals of β-Ga_2S_3 were prepared similarly but at a higher temperature (1200-1250°C). Preparation of GaSe and Ga_2Se_3 (cubic symmetry) was described by Goryunova et al (Ref 13). GaS and GaSe were used in the form of monocrystals of thicknesses varying from several microns to 100 μ. Ga_2S_3 and Ga_2Se_3 were 50-100 μ thick. Structure in the fundamental absorption edge was observed in the spectra of GaS and GaSe at 77°K (Figs 1a and 2a respectively). Such structure was also visible in the

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absorption spectrum of GaSe at room temperature. In contrast to GaS and GaSe, no structure was observed in the fundamental absorption edges of Ga_2S_3 and Ga_2Se_3 either at room temperature or at 77°K (Figs 1б and 2б). The absence of structure in the absorption spectra of β-Ga_2S_3 and Ga_2Se_3 is probably due to a large number of randomly distributed imperfections in these crystals. Such imperfections impede formation and migration of excitons and consequently the exciton lifetime is very short. Under such conditions the exciton structure of the absorption bands may be very diffuse or it may disappear altogether. From the absorption spectra the authors deduced the energy gaps in these semiconductors. A table on p 571 lists the values of the energy gaps so deduced at 290°K (col 2) and 77°K (col 3). These values agree satisfactorily with those deduced from photoelectric measurements at room temperature, which are listed in col 3. Acknowledgments are made to N.A. Goryunova for supply of GaSe and Ga_2Se_3 and for advice on preparation of GaS and Ga_2S_3 crystals. There are 2 figures, 1 table and 17 references, 10 of which are Soviet, 5 French and 2 German.

SUBMITTED: November 27, 1958

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SOV/51-6-5-29/34

24(4), 24(6)

AUTHORS: Bansi-Griyo, M. (Bancie-Grillot), Gross, Ye.F., Griyo, B.(Grillot) and Razbirin, B.S.

TITLE: Studies of Linear Fluorescence and Absorption of Pure Cadmium Sulphide Crystals at the Temperature of 4.2°K (Issledovaniye lineychatoy fluorestsentsii i pogloshcheniya kristallov chistogo sernistogo kadmiya pri temperature 4.2°K)

PERIODICAL: Optika i Spektroskopiya, 1959, Vol 6, Nr 5, pp 707-710 (USSR)

ABSTRACT: The present note supplements earlier work (Refs 1, 2, 4) on fluorescence and absorption of CdS monocrystals observed at low temperatures. The monocrystals were produced by sublimation and their thicknesses were ~50 μ or less. A spectrograph of 4 Å/mm dispersion was used to obtain the spectra at 4.2°K. The fluorescence spectrum of sublimated crystals is shown schematically by the band A in the figure on p 709. This spectrum was found to contain one new line (4868.2 Å) in addition to those reported earlier (Ref 2). As before (Refs 1, 2), the fluorescence was mainly blue with very feeble emission at green wavelengths. The background between 4870 and 4942 Å and the fluorescence lines were polarized with the electric vector at right-angles to the optical axis of the monocrystal, suggesting a common origin for all of them. The absorption spectrum of the sublimated crystals is shown by the band B

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Studies of Linear Fluorescence and Absorption of Pure Cadmium Sulphide Crystals at the Temperature of 4.2°K

(the figure on p 709); it did not vary from sample to sample. Three absorption lines (4853.1, 4857.2, 4869.1 Å) were observed in unpolarized light at positions very close to three fluorescence lines at 4855.6, 4861.4 and 4870.0 Å. In the region where continuous absorption was somewhat weaker, the light which had passed through the crystal was completely polarized with the electric vector parallel to the optical axis of the crystal. The authors obtained also the fluorescence spectrum of a crystal which was not prepared by sublimation (the method of preparation is not given). This spectrum was characterized by a strong green band and a line structure in the blue region (D in the figure on p 709) which was quite different from that observed in sublimated crystals; neither the green band nor the blue lines were polarized. See also the following abstract. There are 5 references, 2 of which are Soviet, 1 Dutch, 1 French and 1 mixed (German, English and Russian,.

SUBMITTED: December 31, 1956

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S/181/60/002/011/038/042
B006/B060

9.4160 (3201, 1003, 1137)
26.2420

AUTHORS: Gross, Ye. F., Razbirin, B. S., and Safarov, V. I.

TITLE: A Study of the Longwave Edge of Intrinsic Absorption of Polycrystalline Films of CdS and ZnSe at Low Temperatures

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 11, pp. 2945-2949

TEXT: The authors prepared CdS and ZnS films by sublimating the powdery or crystalline initial substances onto glass or quartz bases; the films were between 0.04 and 1-2μ thick, the sputtering time ranging between 5 and 30 min. A total of over 100 specimens were examined which were all subjected to a considerable temperature gradient during sublimation (along the base the temperature varied from 600-800°C to room temperature). Fig.1 shows the spectra taken on a 0.42μ thick CdS film at 77.3°K in the range of the longwave absorption edge; while the absorption spectrum of the film has a smooth course on the "cold" part of base b, that of the film on the "warm" base (a) exhibits three distinct peaks at 4878, 4838, and 4706 A which can be assigned to the three lines with 4870, 4840, and 4720 A exhibited by the CdS monocrystal. The shift is ascribed to deforma-

A Study of the Longwave Edge of Intrinsic Absorption of Polycrystalline Films of CdS and ZnSe at Low Temperatures

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tion owing to the backing and the great number of defects. The first two peaks have a half-width of 10, the third one of 30 A. SnSe exhibits the same effect. The "hot" part exhibits three peaks, two distinct ones at 4430 and 4412 A, and a very weak one at 4365 A. The half-widths are the same. One of these maxima has been already observed by G. A. Zholkevich. An investigation of the films at 4.2°K did not give different results. Electron diffraction studies showed that the difference in the spectra of "cold" and "hot" films cannot be due to different crystallization forms or amorphism of the "cold" film. The differences are explained by the fact that films forming on the "hot" parts of the base consist of considerably larger and less defective crystals than those forming on the "cold" parts. This assumption has been checked experimentally. M. A. Rumsh and V. N. Shchemelev as well as V. N. Vertsner and M. I. Rudenok are thanked for assistance in the experiments; K. V. Shalimova and N. V. Karpenko are mentioned. There are 3 figures and 7 references: 5 Soviet, 1 British, 1 French, and 1 German.

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A Study of the Longwave Edge of Intrinsic Absorption of Polycrystalline Films of CdS and ZnSe at Low Temperatures

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B006/B060

ASSOCIATION: Fiziko-tekhnicheskiy institut AN SSSR Leningrad (Institute of Physics and Technology of the AS USSR, Leningrad)

SUBMITTED: July 28, 1960

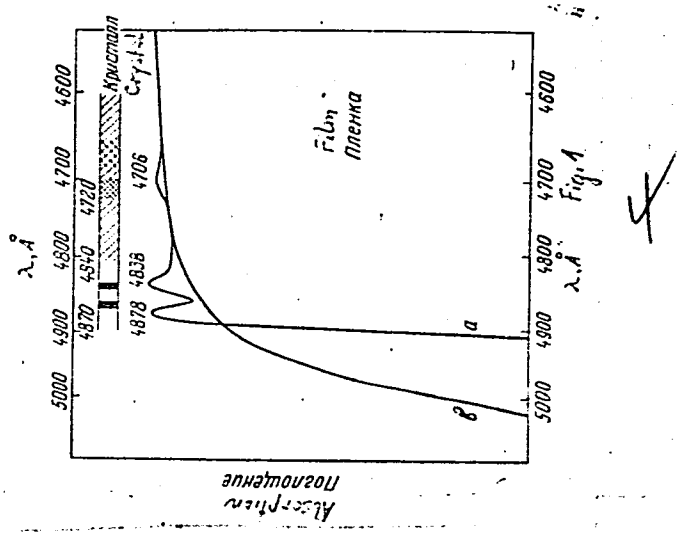

Fig. 1

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E201/E391

AUTHORS: Gross, Ye.F., Razbirin, B.S. and Shekhmamet'yev, R.I.

TITLE: Investigation of the Reflection and Luminescence Spectra of Copper Halides at Low Temperature

PERIODICAL: Optika i spektroskopiya, 1960, Vol 8, Nr 2, pp 232 - 238 (USSR)

ABSTRACT: This paper is based on the results of the diploma work of B.S. Razbirin and R.I. Shekhmamet'yev carried out at Leningradskiy gosudarstvennyy universitet im. Zhdanova (Leningrad State University im. Zhdanov) in 1955-1957. The paper reports the results of an investigation of the diffuse reflection and luminescence spectra of CuI (Figures 1, 2), CuBr (Figures 3-5) and CuCl (Figure 6) crystals at 77 °K in the spectral region around the fundamental absorption edges of these three compounds (some of these results have been reported earlier, cf. Ref 8). The crystals were used in the form of sublimated layers deposited in vacuo on glass plates and in the form of fine-grained powders. Luminescence was excited with ultraviolet light from a mercury lamp SVDSh-1000:

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Investigation of the Reflection and Luminescence Spectra of Copper Halides at Low Temperature

luminescence and reflection spectra of CuI and CuBr crystals. After adsorbed gas is removed the luminescence and reflection spectra recover their original form (this process can be repeated many times);
3) The luminescence spectra of CuI and CuBr contain groups of equidistant lines similar to those observed in other semiconducting crystals (CdS, CdSe, ZnS, ZnO, etc);
4) The results obtained indicate that the short-wavelength weak luminescence lines of CuI, CuBr and CuCl, which coincide with absorption lines and are not greatly affected by surface treatment, are due to processes occurring in the crystal lattice. The long-wavelength strong luminescence lines, which are very sensitive to surface treatment, are due to some processes occurring at the surface. There are 6 figures and 12 references, 6 of which are Soviet, 3 English and 2 French, 1 German.

SUBMITTED: June 3, 1959

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E201/E191

26.1512

AUTHORS: Bancie-Grillot, M., Ye.F. Gross, E. Grillot and Razbirin, B.S.

TITLE: The Effect of Temperature on Two Series of Bands in the Green Fluorescence Spectrum of Pure Cadmium Sulphide at Low Temperatures

PERIODICAL: Optika i spektroskopiya, 1960, Vol 9, No 4, pp 542-544

TEXT: Very pure cadmium sulphide, which does not luminesce at room temperature, exhibits intense green fluorescence at the temperature of liquid air (Refs 1-3). The spectrum consists of two vibrational series whose maxima are given by $\nu_1 = 19\,450 - 300n$ cm^{-1} and $\nu_2 = 19\,310 - 300p$ cm^{-1}, where n and p are small integers. The present paper reports further studies on the effect of temperature on the relative intensities of the two series, between 4 and 77 °K. In some crystals only the second series (ν_2) was observed at 4 °K; heating of these crystals to the boiling point of liquid nitrogen destroyed gradually this series, which was (also gradually) replaced by the first series at 77 °K. If a crystal exhibited only the first series at 4 °K, then

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